CHAPTER 11

ROLES AND ACTIVITIES OF PARTICIPANTS

11.0 Introduction

A number of Federal and state agencies have instituted programs for helping communities identify and solve local flood problems. Successful LFWSs depend on mutual support among all levels of government and the private sector. Accurate and timely weather and river forecast and warning systems are vital to the safety and well-being of the Nation. The interpretation of NWS forecast, warning, and guidance products on a scale that helps to assure appropriate response along the tens of thousands of streams which threaten our population can be most effectively accomplished with the cooperation of local interests. The combination of Federal and local resources in a cooperative program that maximizes responsible flood warning capabilities is necessary for accomplishing a primary goal of the NWS.

The roles of the various Federal and state agencies, associations, and user groups in developing flood warning and response systems are broadly described in the following pages. The intent is to provide a guide to local communities seeking assistance in evaluating the need for local flood warning and response systems and developing appropriate local programs. The following information has been, in part, summarized from "Guidelines on Community Local Flood Warning and Response Systems," Hydrology Subcommittee of the Federal Interagency Advisory Committees on Water Data, August 1985.

11.1 U.S. Army Corps of Engineers

The USACE provides a broad range of water resource development projects to the Nation. The USACE operates major dams, hydroelectric power plants, levees, harbors, waterways, locks, and recreation areas throughout the United States.

The USACE may undertake investigations of water and related land resources plans under specific authorizations by the Congress or, for smaller studies, under general continuing authorities. Continuing authorities permit the USACE to undertake investigations and construction of small projects for flood control, navigation, beach erosion control, clearing, and emergency bank protection. Other legislation empowers the USACE to undertake investigations for modifying existing projects or their operation; or for cooperative assistance to states in the preparation of comprehensive plans for water resources development, utilization, and conservation.

These authorities require the USACE to consider all alternatives in controlling flood waters, reducing the susceptibility of property to flood damage and mitigating human and financial losses. The USACE considers both structural and nonstructural measures in planning for flood damage prevention or reduction. The USACE also considers all practicable and relevant

alternatives applicable to sound floodplain management, including modifying the ways in which people would otherwise occupy and use floodplain lands and waters.

Nonstructural solutions include local flood warning and response systems, temporary evacuation or permanent relocation, emergency flood-fighting and financial relief, land use regulations and building codes, floodproofing with or without land use regulations, and area renewal and conversion to open spaces. Structural solutions include dams and reservoirs, levees, dikes, walls, diversion channels, bridge modifications, channel alterations, pumping, and land treatment. Structural and nonstructural solutions are considered individually or in combination.

The USACE's Floodplain Management Services Program can provide technical assistance and planning guidance upon request to both Federal and non-Federal entities in identifying the magnitude and extent of the flood hazard and in planning for the wise use of floodplains. This assistance and guidance can include the development of LFWSs. Under the Planning Assistance to States Program, the USACE can provide Corps expertise in preparation of comprehensive plans for development, utilization, and conservation of water and related resources. Studies performed under this Program can include planning for LFWSs.

11.2 U.S. Bureau of Reclamation

The USBR, an agency of the U.S. Department of the Interior, operates in the Nation's 17 western states. Technical assistance can be obtained from a flood hydrologist at each of the USBR's seven regional offices.

The mission of the USBR is to manage, develop, and protect water and related resources in an environmentally and economically sound manner. The USBR's functions and services include providing municipal and industrial water supplies, hydroelectric power generation, irrigation water for agriculture, water quality improvement, flood control, river navigation, river regulation and control, fish and wildlife endorsement, and outdoor recreation. The USBR must also safeguard the investment of approximately $16 billion in water project infrastructure and research on water-related design, construction, materials, atmospheric management, and wind and solar power. The USBR's interest in the automated LFWS is focused primarily on its dam safety program. A national MOU between NOAA and USBR highlights the need to fully coordinate an automated LFWS.

11.3 Natural Resources Conservation Service

The NRCS, an agency of the U.S. Department of Agriculture, recognizes the use of flood warning systems along with other nonstructural and structural measures as a means of reducing flood damages. The NRCS can provide both financial and technical assistance in the development and installation of LFWSs.

In watersheds that are less than 250,000 acres in size, the NRCS can pay up to 80 percent of the installation costs for a flood warning system. Flood warning systems must be

economically justified to be eligible for cost-share assistance. Normally, the NRCS cooperates with the NWS in the development and installation of the systems. Cost sharing may be provided for the installation of rain and/or stream gages, radio relay equipment, a computer or analysis system, and a warning system. After the system is operational, the local sponsors must operate and maintain it. The NRCS makes a major effort to interview floodplain residents to help them understand how a flood warning can reduce their specific flood losses. They may participate in pilot projects to demonstrate new technology or gain acceptance of innovative approaches using special funds available under the Resource Conservation Act. For more information, guidance, or technical assistance, contact your state's conservationist.

11.4 U.S. Geological Survey

The Water Resources Division of the USGS has the mission to provide the hydrologic information and understanding needed to best use and manage the Nation's water resources for the benefit of its people. To accomplish this, the Division assesses the Nation's water resources in terms of the quality, quantity, and usage and develops the information and hydrologic understanding necessary to predict the consequences of alternative plans and policies for developing and using water resources. Much of this work is done through cooperation with and funding from Federal, state, and local agencies. The USGS operates nationally over 7,000 continuous-recording gaging stations and numerous precipitation gages. Many LFWSs have taken advantage of these gages, incorporating them into their systems at little or no cost.

Where the USGS has interest in the hydrologic data being collected by the LFWS, they may be willing to operate and maintain the gages on a repay basis. In some instances, the USGS may even be able to bear one-half the costs of the operation and maintenance. The USGS involvement in LFWS is occurring in many locations, including the island of Puerto Rico; Clark County (Las Vegas), Nevada; and Somerset County, New Jersey.

The USGS maintains Water Resources Division District (state) offices in or near almost every state capital. The appropriate procedure for investigating the possibility of receiving assistance for an LFWS from one of these offices would be to contact the District Chief.

11.5 National Weather Service

The mission of the NWS is to provide weather and flood warnings, public forecasts, and advisories for all of the United States, its territories, adjacent waters, and ocean areas, primarily for the protection of life and property. The NWS provides its data and products to private meteorologists to utilize in their specialized services. Hence, the NWS issues warnings and forecasts of severe weather, floods, hurricanes, and tsunami events that adversely affect life and property. Also, the NWS collects, exchanges, and distributes meteorologic, hydrologic, climatic, and oceanographic data and information on a national and international basis. The NWS is the official voice when issuing warnings for weather and flood-threatening situations.

Additionally, the NWS issues weather, river, and water resources forecasts and related guidance materials used to form a common national hydrometeorological information base for the general public, private sector, aviation, marine, forestry, agricultural, navigation, power interests, land and water resources management agencies, and emergency managers at all levels of government.

The NWS WFOs provide general weather information, warnings, advisories, and aviation and public forecasts to the general public and to special user groups in their service areas. The WFOs also collect hydrometeorological data that are relayed to the supporting RFC(s). The RFCs are staffed with professional hydrologists who are responsible for quality control of input data, execution of computerized hydrologic models, interactive analysis of the model output, and distribution of river, navigation, and flood forecasts to WFOs. WFOs then use the RFC products to issue a variety of hydrologic forecast and warning products for the local area. These RFC forecasts can usually be achieved only for the larger river basins with crest times greater than 6 hours. For communities located on small, flashy streams with crest times of less than 6 hours, the NWS provides flash flood watches and warnings and works with state and local government agencies to establish local flood warning and response systems.

The NWS recognizes the importance of local flood warning and response systems in improving flood warning service to communities and provides technical assistance to communities with flood problems. Technical support involves recommending alternative flood warning systems appropriate to the economic capabilities of the community; helping communities in the design, installation, and implementation of warning and response systems and training of their personnel; and providing operational support to responsible community officials. The NWS can provide site selection of the hydrologic observation network, radio path analysis, generic standards for automated LFWSs, and, when the system is operational, additional weather information. Communities desiring information on LFWSs should contact their local WFOs.

11.6 Tennessee Valley Authority

The TVA has a broad duty of planning for the proper use, conservation, and development of the natural resources of the Tennessee River drainage basin and its adjoining territory for the general, social, and economic welfare of the Nation. In 1953, the TVA's approach was broadened to permit the use of flood damage reduction measures that encouraged locally based planning and the wise use of floodplain lands. The TVA has used many approaches ranging from the publication of local flood reports that detail the nature and extent of the problem to providing assistance on locally administered relocation projects in towns where housing has been badly damaged by unusually large floods to flood damage abatement as part of broader community redevelopment projects. Since the 1960s, the TVA has been involved with coordinating flood warning systems and has been participating in IFLOWS since 1980. The TVA has been working with the City of Gatlinburg, Tennessee, on an automated LFWS with an extremely complex response plan. This complexity of the response plan is necessary because Gatlinburg serves as the gateway to the Great Smokey Mountains National Park and is a major tourist area.

Communities in the Tennessee River watershed may contact TVA for information and assistance.

11.7 Federal Emergency Management Agency

Planning for emergencies, responding to them, and recovering from them are responsibilities shared by Federal, state, and local governments and the private sector. The capability to handle an emergency must be based essentially at the local level, with state and local governments providing guidance and support in all aspects of the emergency management process. Through coordination of planning and preparedness activities and the provision of financial and technical support, FEMA encourages the development of predisaster and postdisaster emergency preparedness and response plans.

FEMA supports state and local governments in a wide range of disaster planning, preparedness, mitigation, response, and recovery efforts. As necessary, FEMA provides funding, technical assistance, services, supplies, equipment, and direct Federal support to fulfill state and local government emergency management responsibilities. Additional services and products that FEMA may fund include:

- an inventory of properties and structures in flood-prone areas;
- a statewide flood hazard mitigation plan developed in a predisaster context;
- public awareness media presentations on flood hazards; and
- handbooks or other technical assistance on a variety of flood hazard topics, which may include LFWSs.

FEMA also administers the NFIP, which provides insurance coverage to property owners in communities with flood hazards in exchange for community agreement to adopt floodplain management measures to protect lives and reduce property losses. See Chapter 9 of this Handbook for a description of the CRS, which is a part of the NFIP. Technical assistance is provided to communities in both floodplain management and postdisaster hazard mitigation activities, such as encouragement of new construction away from flood-prone areas. At present, over 18,935 communities participate in the NFIP and nearly 3 million insurance policies are in effect. FEMA has published detailed floodplain mapping for about 95 percent of the communities and approximate floodplain delineations for most of the remainder. A detailed NFIP study and backup materials are also available.

There are 10 FEMA Regional Offices. Each office is headed by a regional Director who reports to the FEMA Director and is responsible for all FEMA programs in the region. For additional information and assistance, contact your Regional Office.

11.8 National Park Service

The Department of Interior's National Park Service (NPS) is made up of 334 units covering some 79 million acres. These park units are of such historic or natural significance that they justify special recognition and protection by the Congress; Congress continually adds new

park units to the system. Many of these units are subject to flooding from rivers, lakes, oceans, and tsunamis. Flooding problems are sometimes aggravated by improper development within floodplains, by dam failures, and by unanticipated rises at reservoirs.

To minimize losses, the NPS has implemented policies on floodplains and dam safety in accordance with Executive Orders. As part of these policies, both manual and automated local flood warning and response systems are being installed. With technical review assistance from the USBR, parks are installing flood warning systems on their high dams and dams with significant hazard potential as part of required emergency action plans. Several of these warning systems have been installed with the assistance of the NWS and the USACE.

Contact the NPS for additional information about the use of local flood warning and response systems on floodplains or at dam locations within the NPS area of responsibility.

11.9 State Agencies

Generally, two types of assistance are available from a state agency: technical and financial. The availability of either or both varies, however, according to the individual state and its particular resources.

A local municipality seeking financial assistance from a state may have to contact several state agencies. Funding may be available from the state emergency management agency or from another agency such as the natural resources or community affairs departments. Funding may have to be packaged from several state sources to make a project viable. It is also possible that financial assistance is not available.

Technical assistance in various forms is available from most states. The agency responsible for the state's floodplain management, NFIP activities, and/or state emergency management will usually be able to provide information on local flood warning and response systems and to advise a local municipality interested in developing such a system. The type and extent of assistance will vary with the capabilities and resources of each state.

11.10 Association of State Floodplain Managers

The cornerstone of the Association of State Floodplain Managers (ASFPM) is its membership. Membership is comprised of Federal, state, and local water resources agencies along with consultants, the private sector, and universities. The ASFPM supports comprehensive nonstructural and structural management of the Nation's watersheds and floodplains and their related land and water resources. The ASFPM provides members from all geographical areas a unified voice that is heard at the national level, thereby fostering ways to reduce flood losses and promote wise floodplain management in the Nation.

An automated LFWS committee promotes the opportunity to educate members and the public at large with in-depth knowledge of the automated LFWS at its national conferences. The ASFPM has experienced substantial growth in the past decade and is expected to continue its

growth in the future, presenting an ideal vehicle for experts in the automated LFWS to communicate with their counterparts.

11.11 ALERT Users Group

The AUG is a nonprofit corporation representing organizations, agencies, corporations, and individuals interested in furthering the capabilities of real-time environmental warning systems through the application and improvement of ALERT technologies. Membership extends throughout the United States as well as worldwide. The organization primarily supports the interests of the California and Nevada representatives but actively supports many other western states as well. The AUG maintains a close liaison with the SAAS to develop common policies and objectives. They also encourage the development of regional ALERT systems and support groups and strive to improve the effective interaction of those organizations that can benefit from real-time hydrologic systems.

ALERT users have common interests in promoting adequate data networks to meet their needs in the noninterfering use of those networks and in the effectiveness and cost of ALERT hardware, software, and services in their areas of interest. They share information and concerns about the establishment, management, and use of those systems.

The AUG holds an annual conference with a structured agenda that includes talks, discussions, workshops, and demonstrations. In addition, quarterly business meetings are held. The AUG publishes a quarterly newsletter, *ALERT Transmission*, with SAAS, to maintain effective communications among members and others interested in automated LFWSs. For further information, contact the AUG (see Chapter 12 for address).

Internet. The AUG has a Web Page on the World Wide Web at the following address:

http://nimbo.wrh.noaa.gov/Alert/

11.12 Southwestern Association of ALERT Systems

SAAS covers the States of Arizona, Arkansas, Colorado, Kansas, Louisiana, Missouri, New Mexico, Oklahoma, and Texas. This nonprofit corporation began in 1987 and is the second largest ALERT user group. SAAS was formed to improve the performance and utilization of real-time environmental monitoring systems for the ultimate purpose of protecting public health, safety, and welfare. Specifically, SAAS promotes public awareness of ALERT system use and applications; exchanges information, methods, procedures, and solutions; and encourages preparedness planning. It also promotes sharing of real-time data with other government agencies, encourages suppliers to develop needed solutions, and cooperates with agencies and organizations of similar purpose. SAAS holds an annual conference in the fall where suppliers, ALERT operators, and government agencies exchange information. For further information, contact SAAS (see Chapter 12 for address).

Internet. The SAAS has established a Web Page on the World Wide Web at the following address:

http://www.io.com/ rooke/alert/saas

11.13 National Hydrologic Warning Council

The National Hydrologic Warning Council was established in 1993 by the nonprofit AUG and SAAS to enhance cooperation between the two organizations on national issues that impact local flood warning programs. The initial organizational meeting was held in Baltimore in May 1995.

Internet. The National Hydrologic Warning Council has a Web Page on the World Wide Web at the following address:

http://www.io.com/ rooke/alert/nhwc

11.14 IFLOWS Management

The IFLOWS was created by congressional mandate in 1980. The NWS has developed cooperative agreements between the NWS and selected Appalachian state emergency service agencies. Under these agreements, the NWS designs and develops the system, provides equipment, software, and software upgrades, supports equipment replacement, and provides continuing technical support. The participating states operate and maintain the system. IFLOWS technology, including software, is available to others outside the IFLOWS program area.